Fig.1

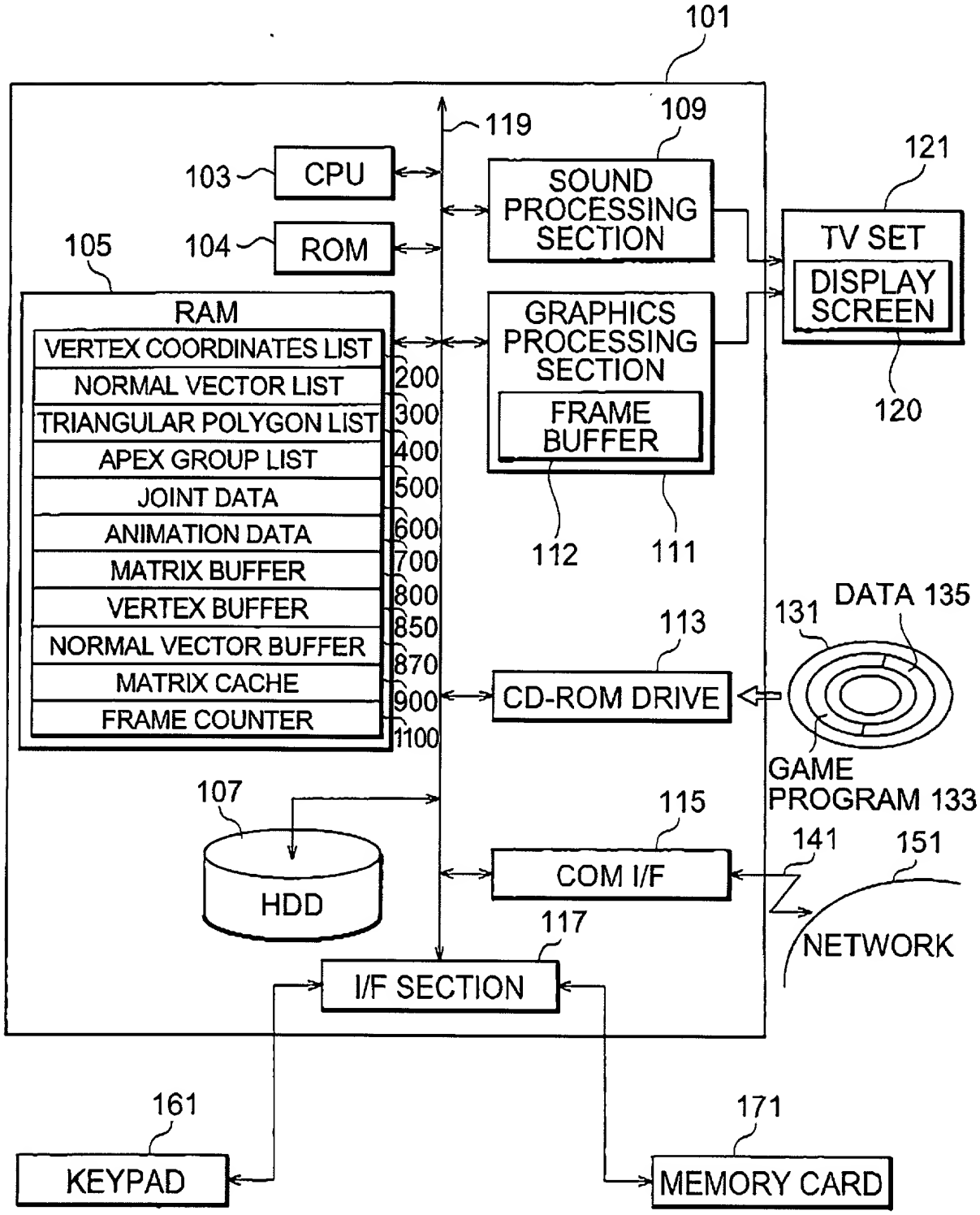
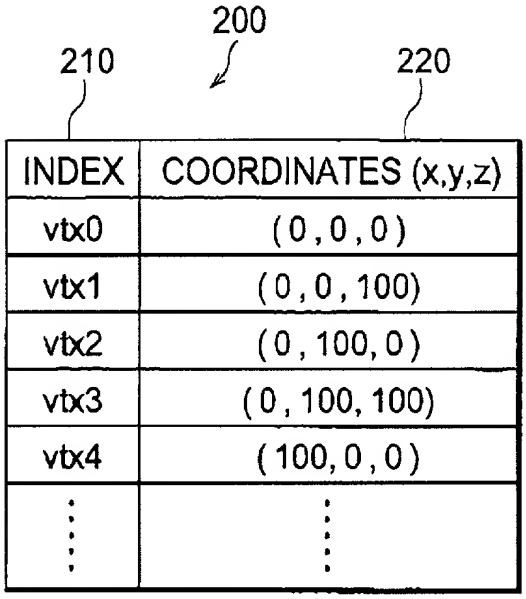
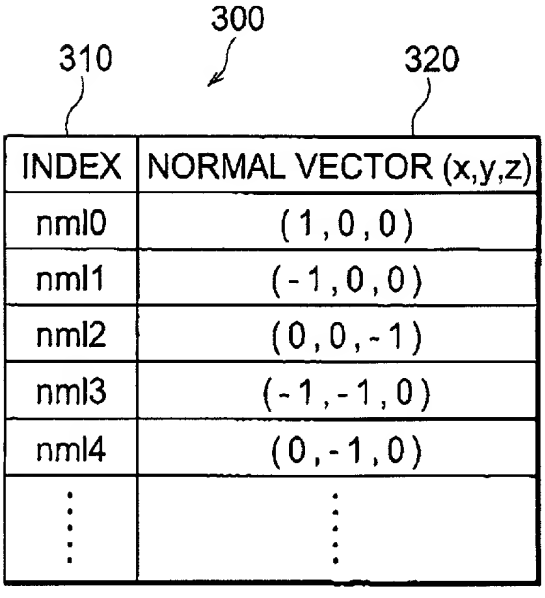

101
119
109
121
103
CPU
SOUND PROCESSING SECTION
TV SET
DISPLAY SCREEN
105
104
ROM
RAM
GRAPHICS PROCESSING SECTION
FRAME BUFFER
120
VERTEX COORDINATES LIST
NORMAL VECTOR LIST
TRIANGULAR POLYGON LIST
APEX GROUP LIST
JOINT DATA
ANIMATION DATA
MATRIX BUFFER
VERTEX BUFFER
NORMAL VECTOR BUFFER
MATRIX CACHE
FRAME COUNTER
200
300
400
500
600
700
800
850
870
900
1100
112
111
DATA 135
131
113
CD-ROM DRIVE
GAME PROGRAM 133
107
115
141
151
HDD
COM I/F
NETWORK
117
I/F SECTION
161
171
KEYPAD
MEMORY CARD

Fig.2



INDEX	COORDINATES (x,y,z)
vtx0	(0 , 0 , 0)
vtx1	(0 , 0 , 100)
vtx2	(0 , 100, 0)
vtx3	(0 , 100, 100)
vtx4	(100, 0 , 0)
⋮	⋮

Fig.3



INDEX	NORMAL VECTOR (x,y,z)
nml0	(1 , 0 , 0)
nml1	(- 1 , 0 , 0)
nml2	(0 , 0 , - 1)
nml3	(- 1 , - 1 , 0)
nml4	(0 , - 1 , 0)
⋮	⋮

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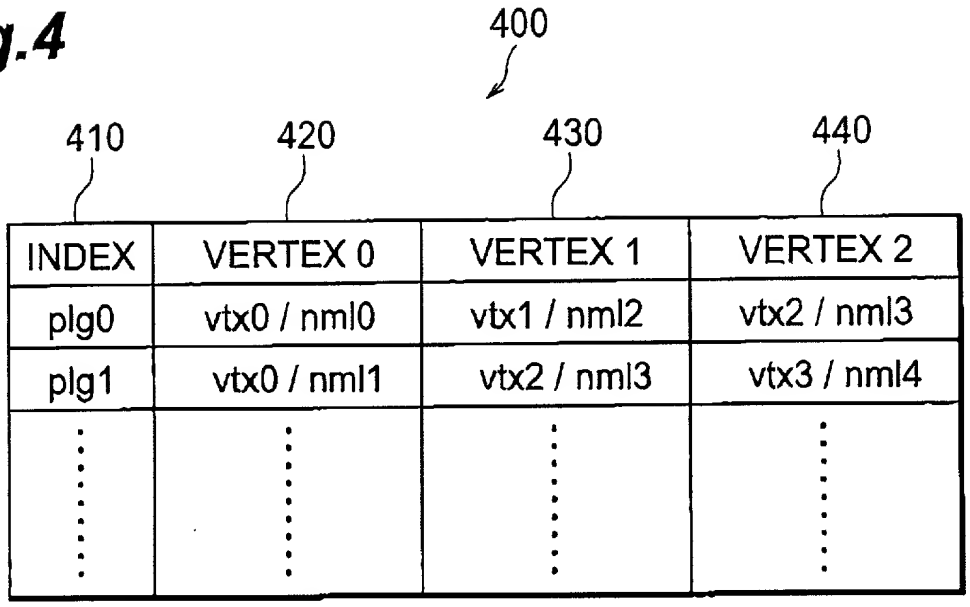
Fig.4



INDEX	VERTEX 0	VERTEX 1	VERTEX 2
plg0	vtx0 / nml0	vtx1 / nml2	vtx2 / nml3
plg1	vtx0 / nml1	vtx2 / nml3	vtx3 / nml4
⋮	⋮	⋮	⋮

Fig.5

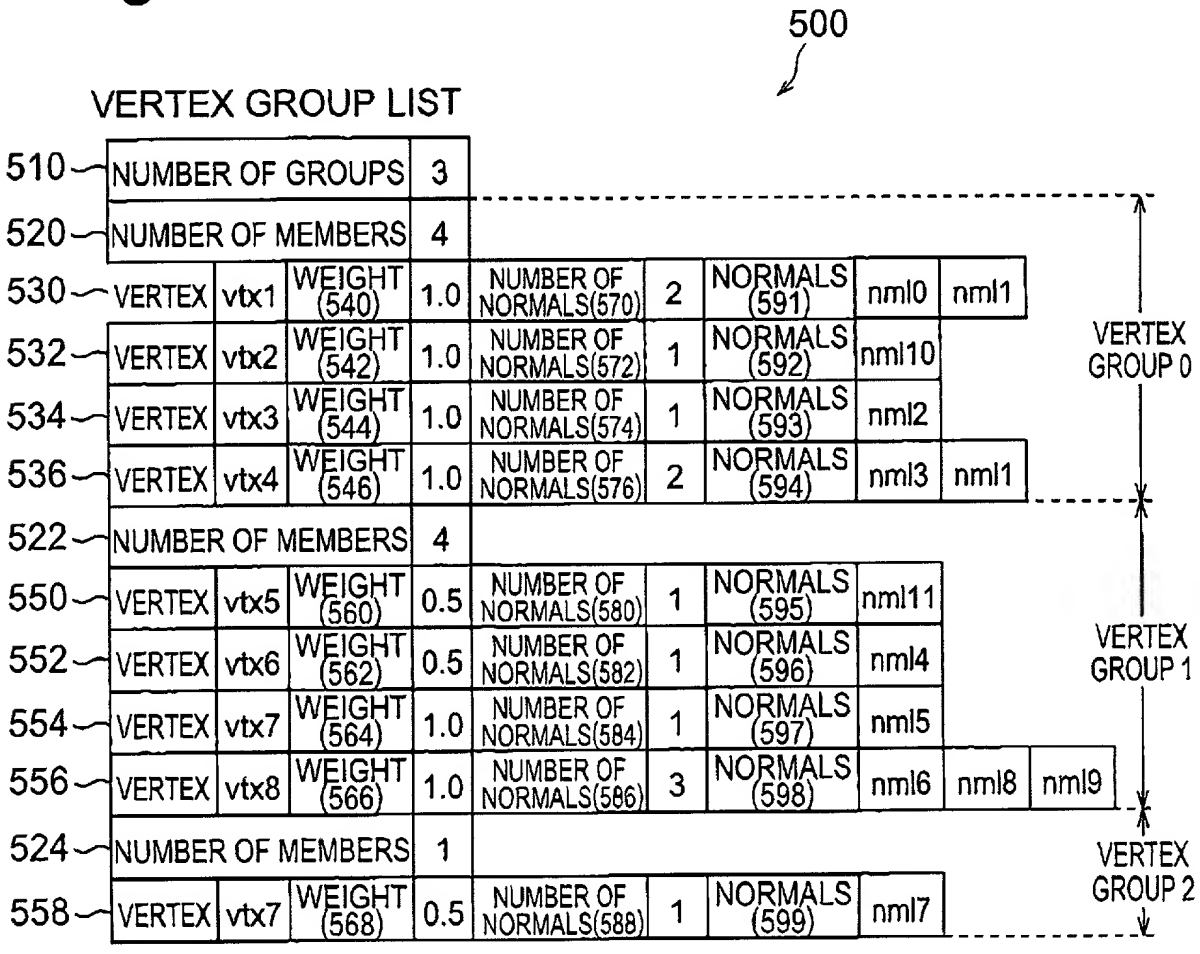


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Fig.6

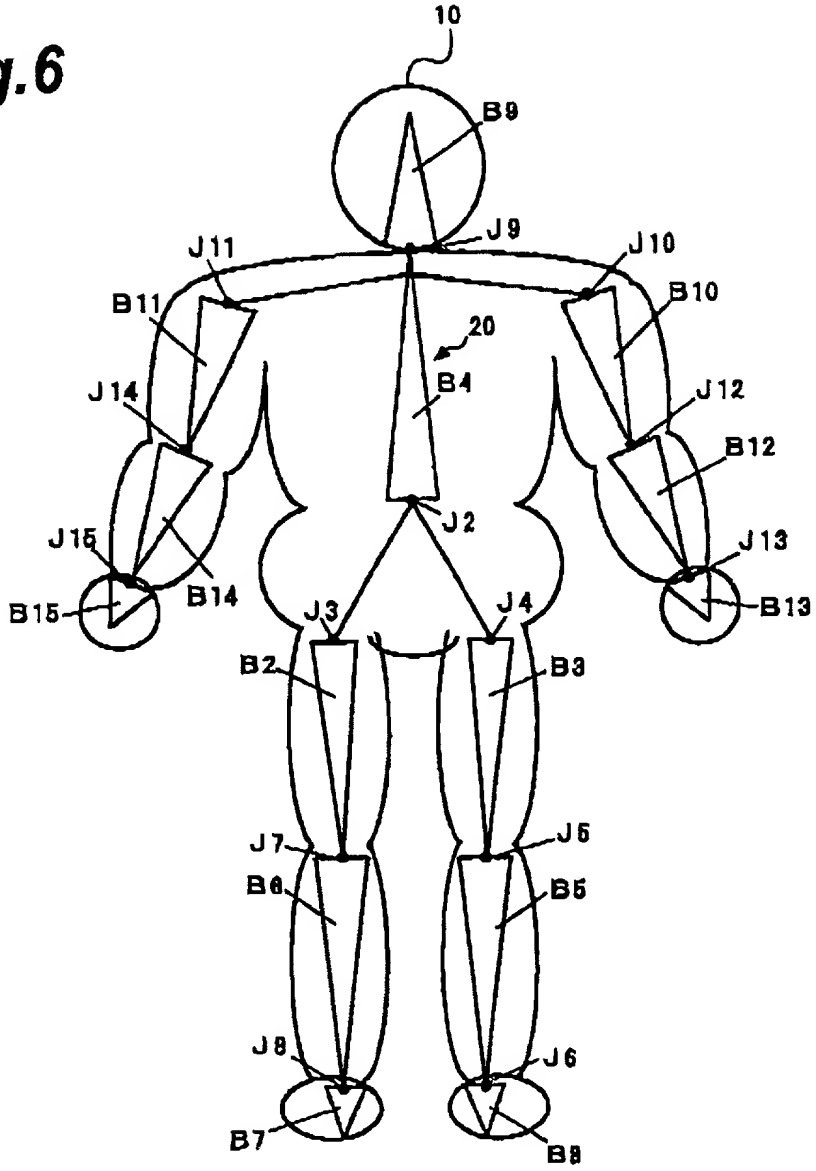

Fig.7

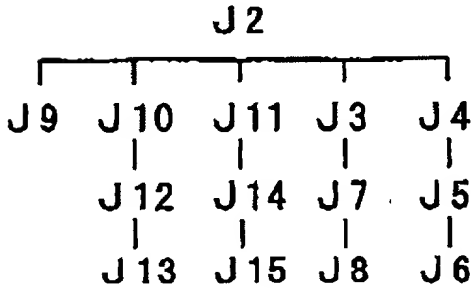

Fig.8

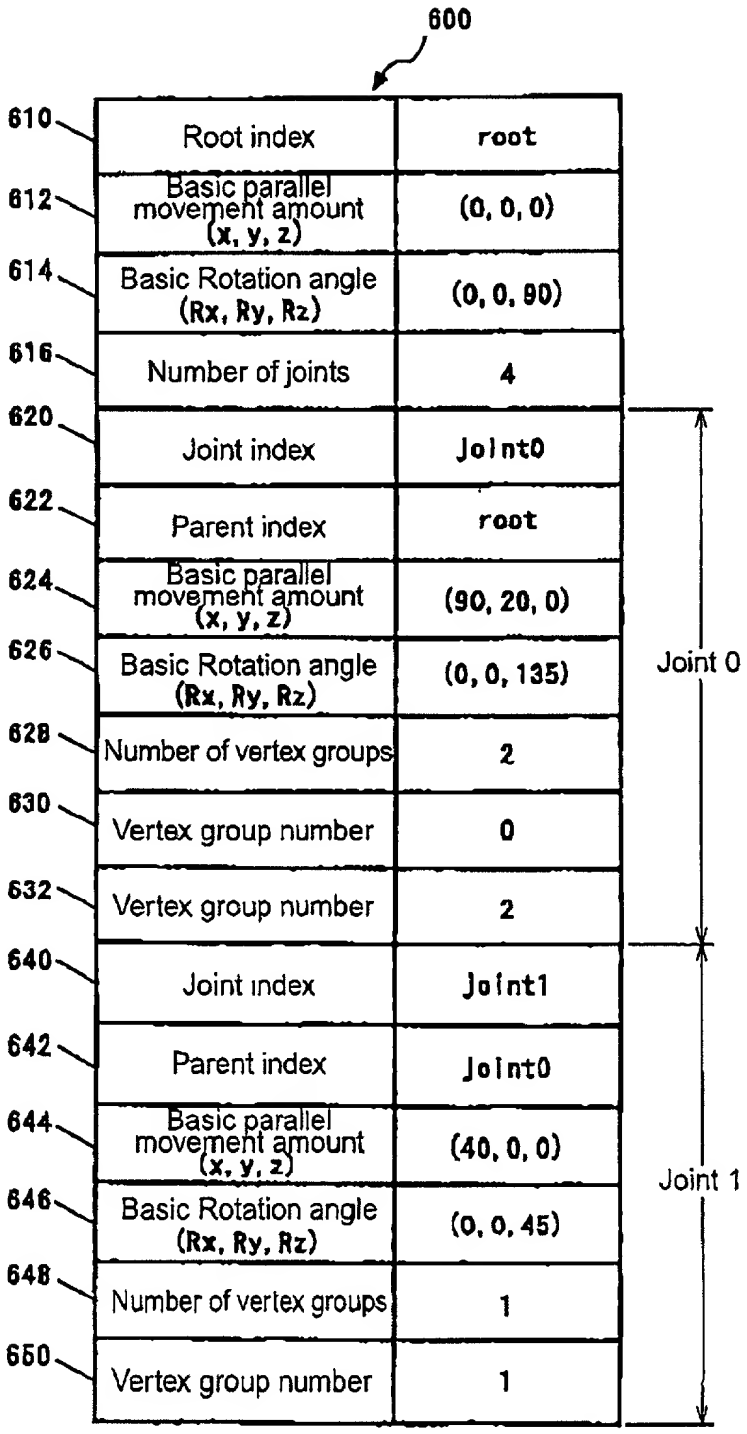
600
610
Root index
root
612
Basic parallel movement amount (x, y, z)
(0, 0, 0)
614
Basic Rotation angle (Rx, Ry, Rz)
(0, 0, 90)
616
Number of joints
4
620
Joint index
Joint0
622
Parent index
root
624
Basic parallel movement amount (x, y, z)
(90, 20, 0)
626
Basic Rotation angle (Rx, Ry, Rz)
(0, 0, 135)
628
Number of vertex groups
2
630
Vertex group number
0
632
Vertex group number
2
Joint 0
640
Joint index
Joint1
642
Parent index
Joint0
644
Basic parallel movement amount (x, y, z)
(40, 0, 0)
646
Basic Rotation angle (Rx, Ry, Rz)
(0, 0, 45)
648
Number of vertex groups
1
650
Vertex group number
1
Joint 1

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Fig.9A

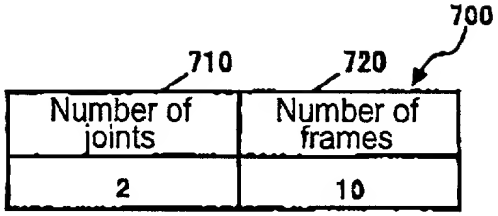

Fig.9B

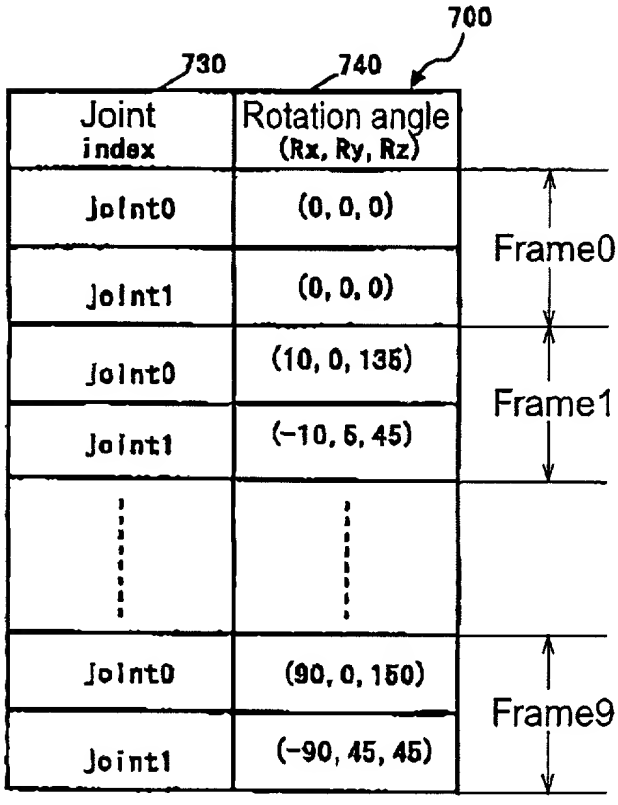

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Fig.10A

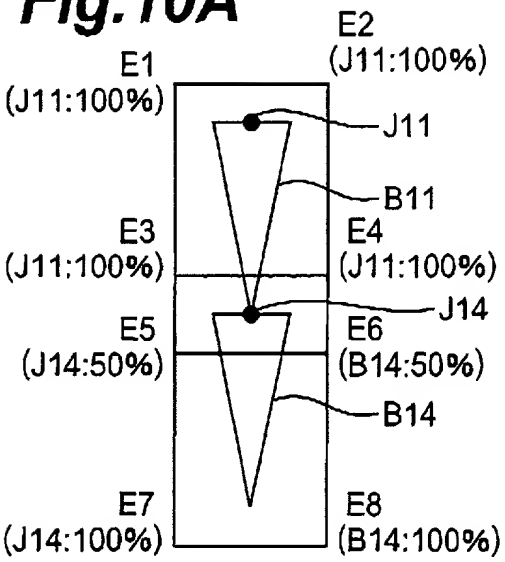

Fig.10B

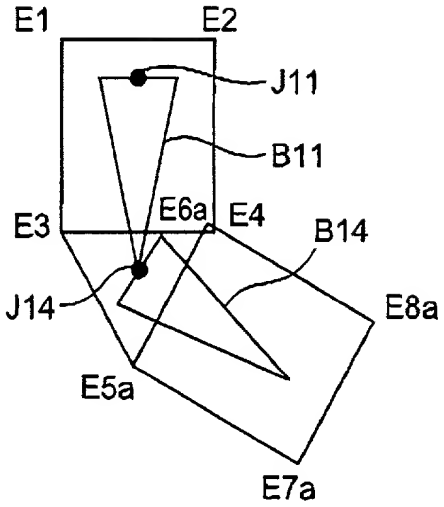

Fig.10C

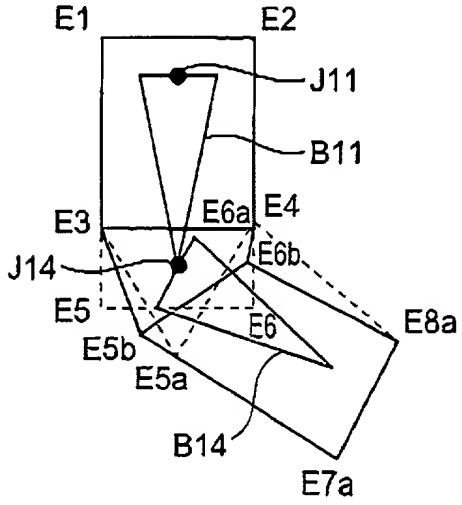

Fig.10D

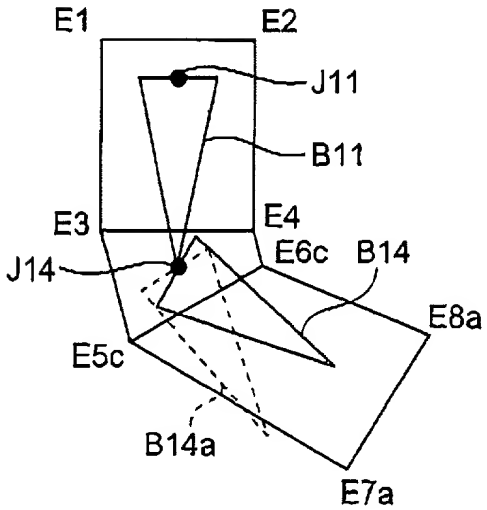

Fig.11

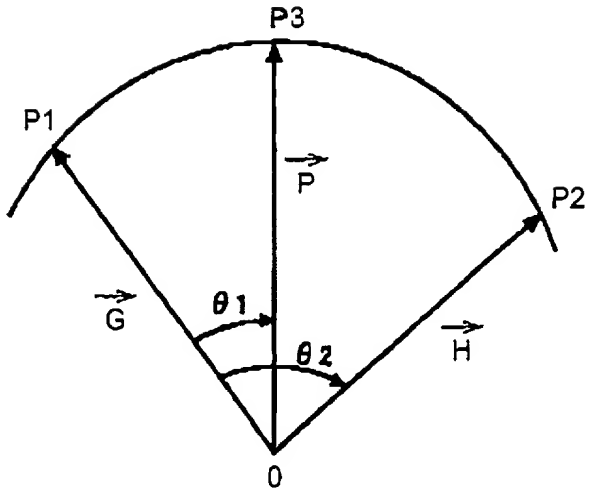

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Fig.12

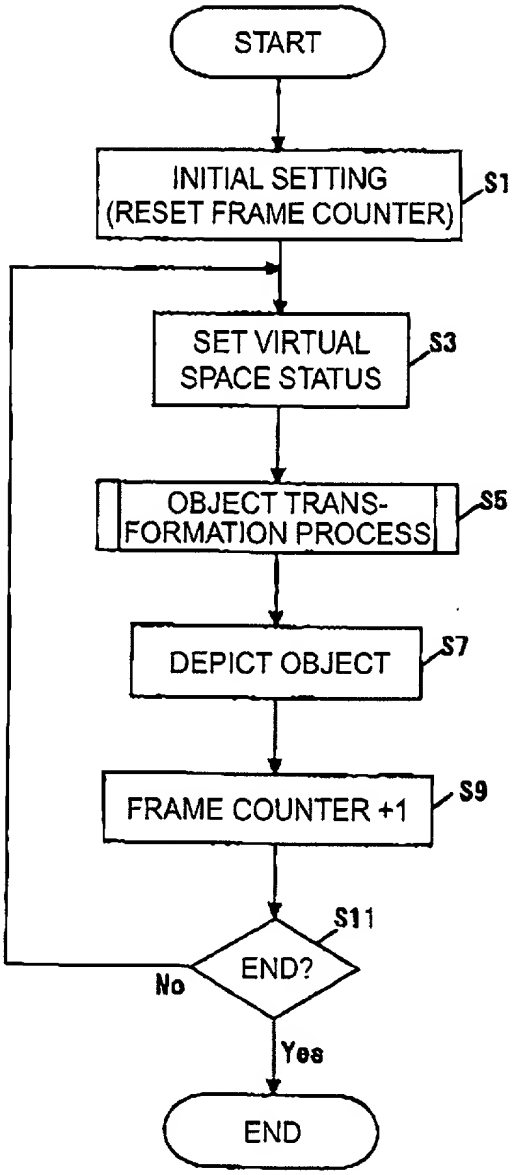

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Fig.13

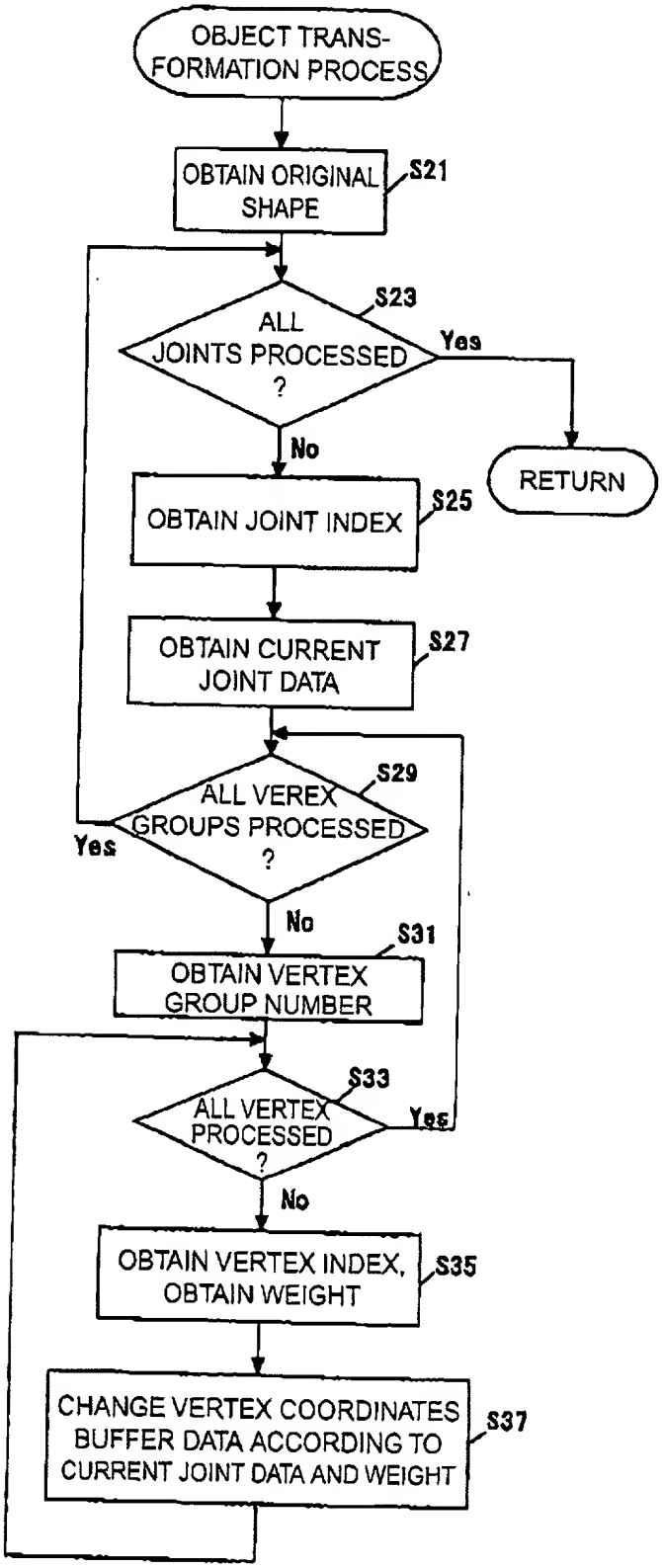
OBJECT TRANS-FORMATION PROCESS
OBTAIN ORIGINAL SHAPE
S21
ALL JOINTS PROCESSED ?
S23
Yes
No
RETURN
OBTAIN JOINT INDEX
S25
OBTAIN CURRENT JOINT DATA
S27
ALL VEREX GROUPS PROCESSED ?
S29
Yes
No
OBTAIN VERTEX GROUP NUMBER
S31
ALL VERTEX PROCESSED ?
S33
Yes
No
OBTAIN VERTEX INDEX, OBTAIN WEIGHT
S35
CHANGE VERTEX COORDINATES BUFFER DATA ACCORDING TO CURRENT JOINT DATA AND WEIGHT
S37

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Fig.14

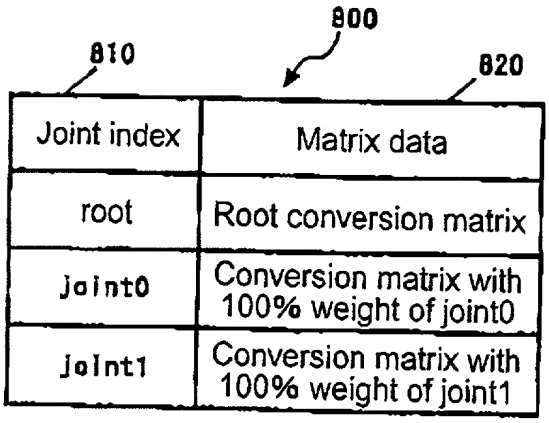

Fig.15

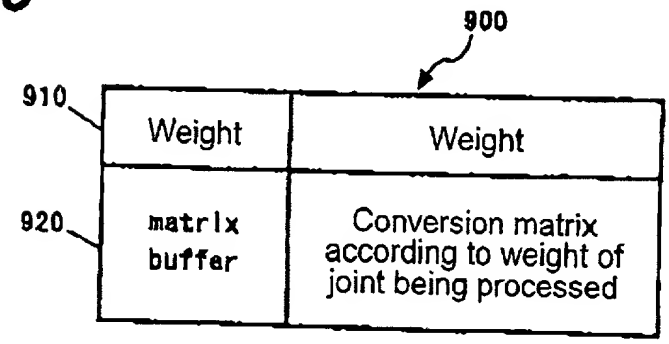

Fig.16

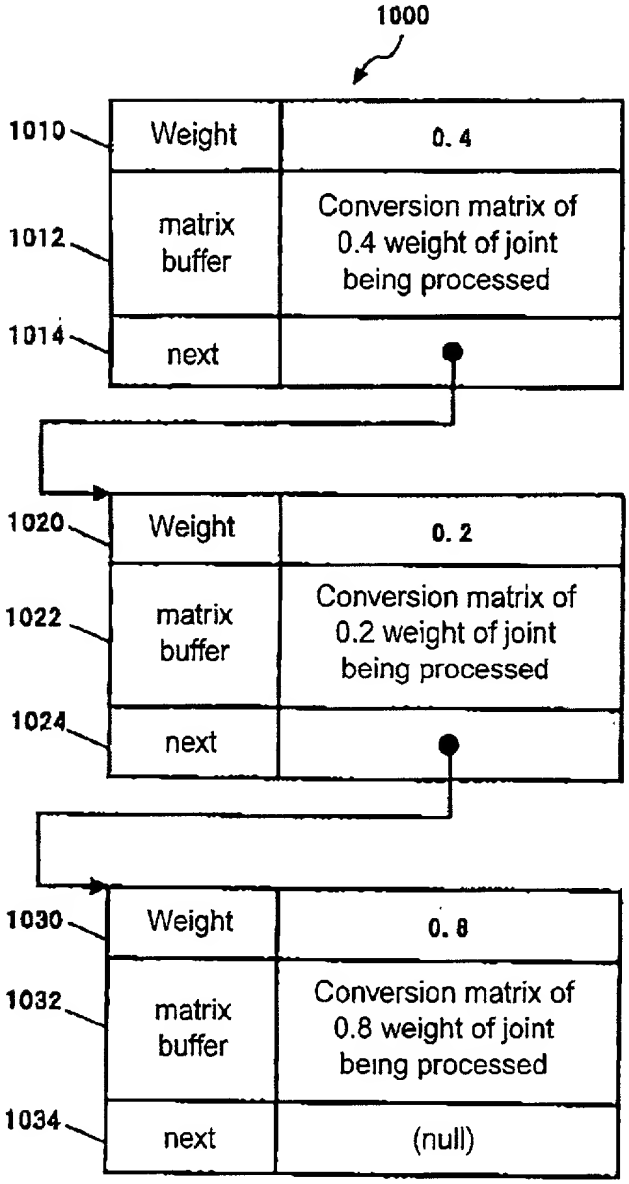
1000
1010
Weight
0.4
1012
matrix buffer
Conversion matrix of 0.4 weight of joint being processed
1014
next
1020
Weight
0.2
1022
matrix buffer
Conversion matrix of 0.2 weight of joint being processed
1024
next
1030
Weight
0.8
1032
matrix buffer
Conversion matrix of 0.8 weight of joint being processed
1034
next
(null)

Fig.17

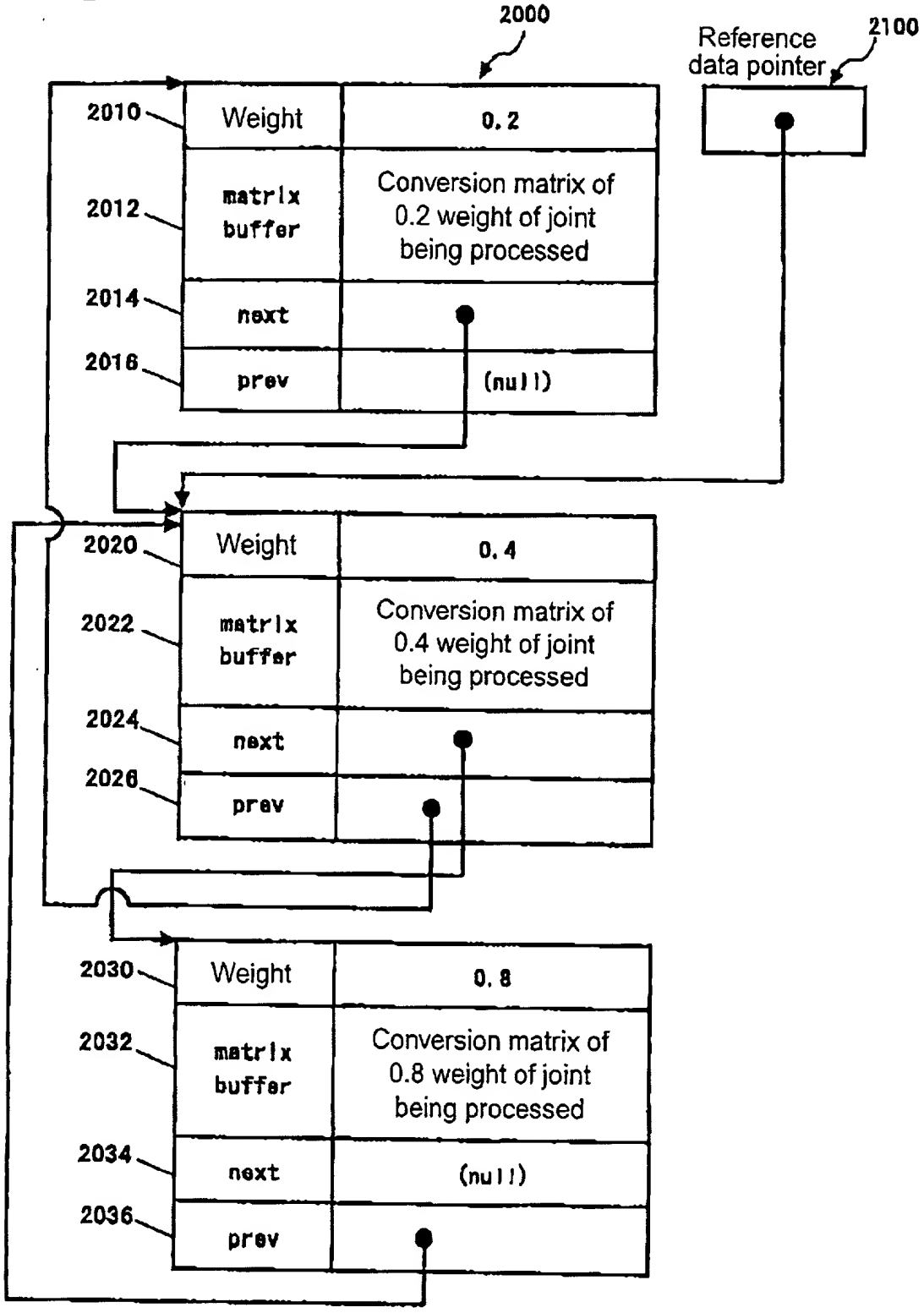
2000
Reference data pointer
2100
2010
Weight
0.2
2012
matrix buffer
Conversion matrix of 0.2 weight of joint being processed
2014
next
2016
prev
(null)
2020
Weight
0.4
2022
matrix buffer
Conversion matrix of 0.4 weight of joint being processed
2024
next
2026
prev
2030
Weight
0.8
2032
matrix buffer
Conversion matrix of 0.8 weight of joint being processed
2034
next
(null)
2036
prev

Fig.18

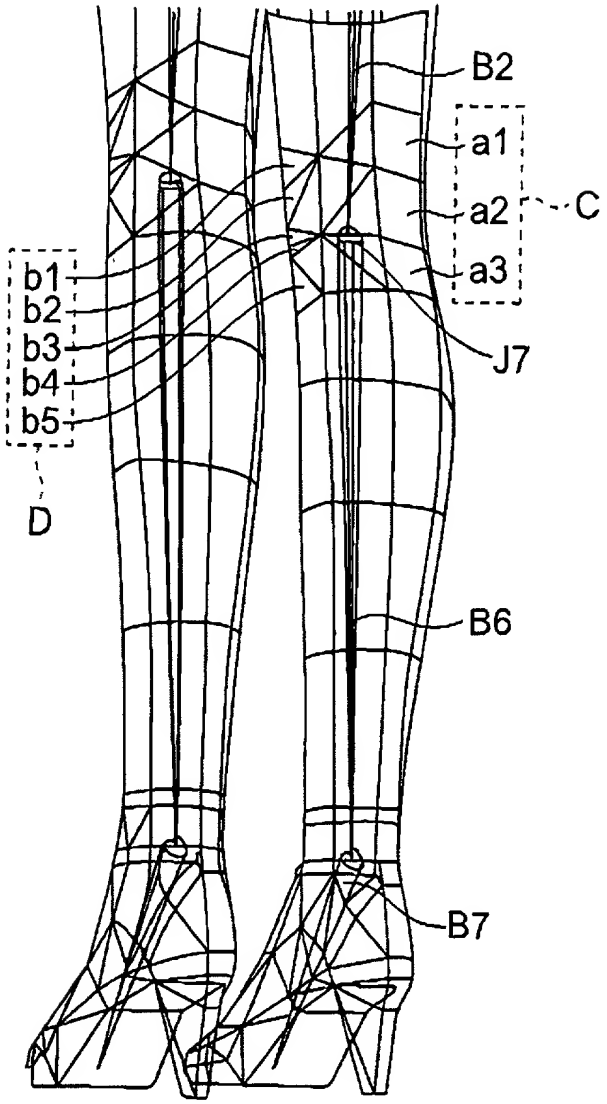

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Fig.19

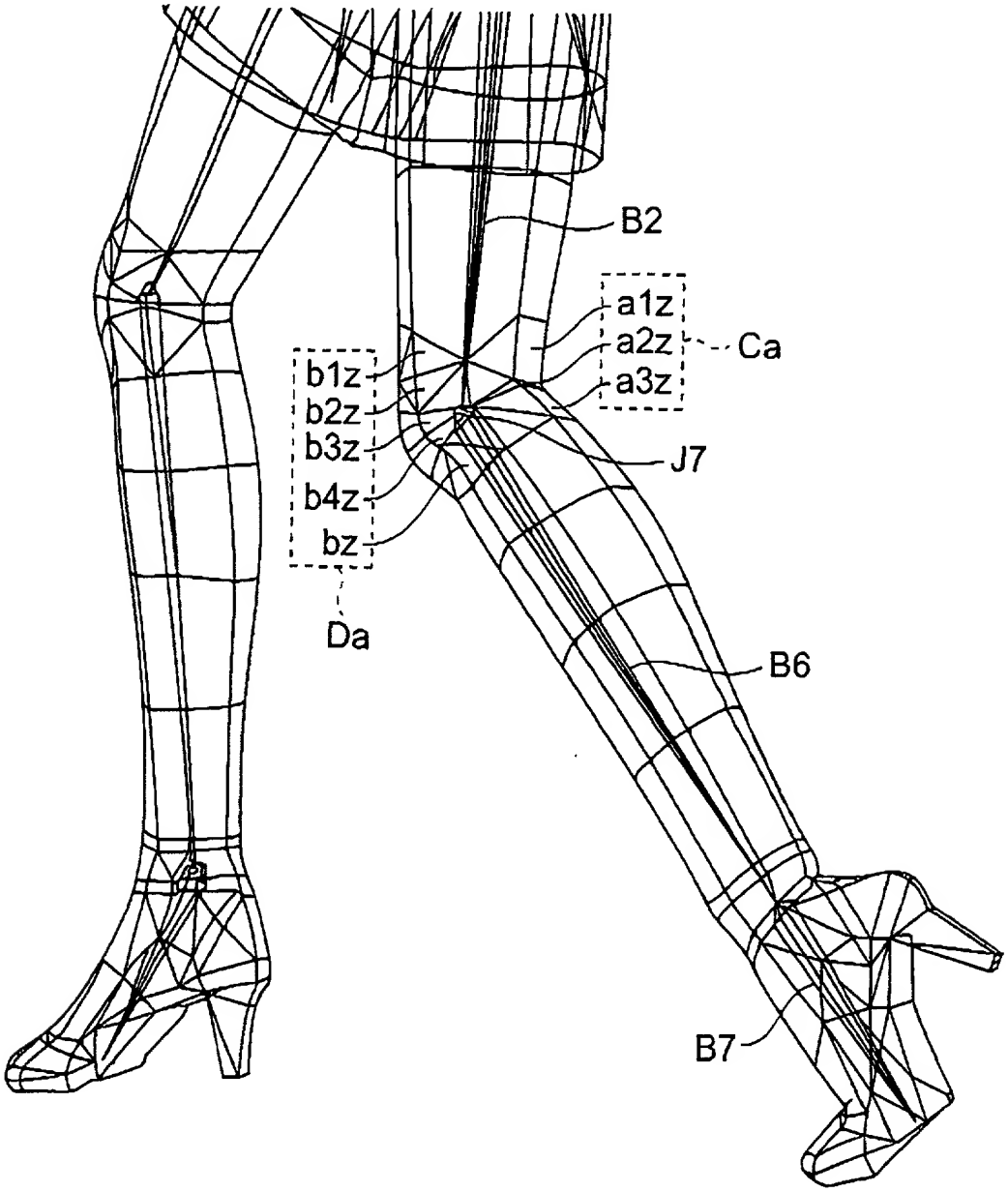

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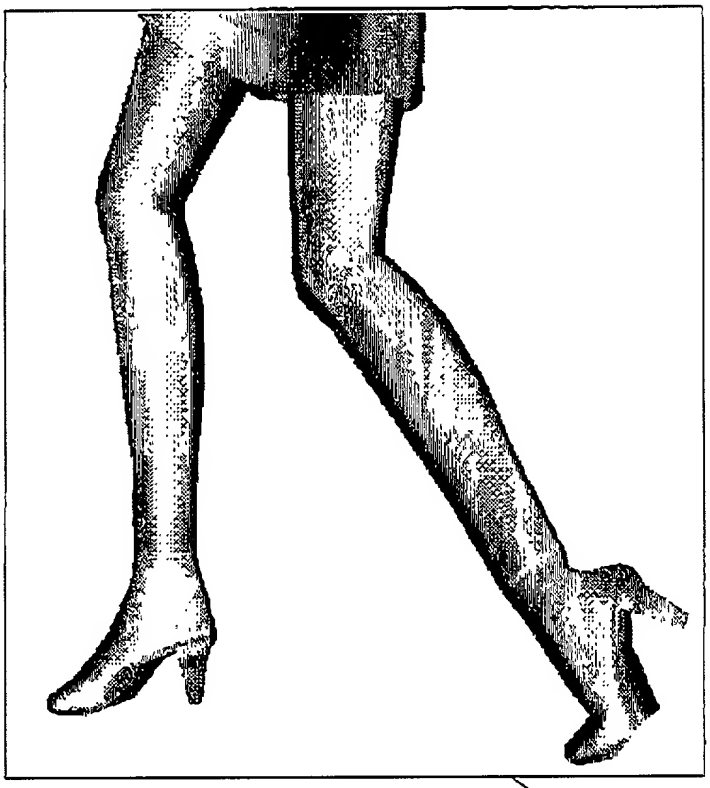
Fig.20

EXPRESS MAIL NO. EL 672 762 260 US

Fig.21



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